Draft natural resource indicator process

(http://www.southatlanticlcc.org/page/indicators)

Overall process and timeline

1. **Foundational documents (Complete by Nov 2012)**
   a. Synthesis of existing indicators and targets
   b. Definitions and framework for indicators
   c. Criteria to be considered for indicators

2. **Based on foundational documents, get broad input on potential indicators and process for revising those indicators in the future (Nov-Feb 2012)**
   a. Selection team
      i. This team will use the foundational documents to get community input and recommend indicators and targets
   b. Revision team
      i. This team will get community input and recommend processes and timelines for revising indicators, targets, and the foundational documents
   c. Processes to be used by both teams
      i. Online survey using SALCC web community and other electronic channels
      ii. Input from Third Thursday Web Forum
      iii. Online survey on shared interests in surrounding LCC communities
      iv. Interviews with targeted individuals (Folks who may not be adequately involved, e.g., Regional planning commission, private lands)
      v. Close coordination with organizations in the process of setting, or which already have set, indicators and targets (e.g., APNEP, ACFHP, ASMFC, ACJV, Fishery Management Councils, NOAA, SARP, FWS, etc.)
      vi. Formal organizational input through SALCC Steering Committee

3. **Synthesis of input into steering committee recommendation (Feb 2013)**
   a. Summary of input from key audiences in Step 2
      i. Larger conservation community (Web Community + targeted interviews)
      ii. Large partnerships (Partnership committee)
      iii. Organizational input from Steering Committee
      iv. Surrounding LCCs

b. In person meeting of Selection and Revision Team to take input from key audiences and develop final recommendations to the Steering Committee

4. **Indicators/targets and process for revision approved by steering committee (March 2013)**
    a. In person meeting to select indicators and targets and decide on process for revisions

5. **Assessment of indicator function (Starting Spring 2013?)**
    a. Post doc evaluates how well final indicators predict the condition of other species, guilds, and ecosystem elements (i.e., sensitivity analysis)
    b. LCC community assesses how well final indicators will work in guiding their conservation actions and organizational efforts
    c. Use revision process to adjust or modify indicators and foundational documents as needed

Foundational Documents

1) Synthesis of existing indicators and targets

The latest version is available here:
https://docs.google.com/spreadsheet/ccc?key=0Ai7ex6mYoQaRdFNjVU1zOVRRNm5CR296VmJtZmxfVUE#gid=13

2) Definitions and framework for indicators

Definitions

Sources:
- Bennett, James P. 2000.   Ecological Indicators for the Nation: Committee to Evaluate Indicators for Monitoring Aquatic and Terrestrial Environments, National Research Council, National Academy Press, Washington, DC. 180 p., ISBN 0-309-06845-2.
- Doren, R.F., Trexler, J.C., Harwell, M., and Best, G.R., Editors, 2008. System-wide Indicators for Everglades Restoration 2008 Assessment. Unpublished Technical Report. 43pp. http://www.sfrestore.org/scg/documents/2008_System-wideIndicatorsReport.pdf
- South Atlantic LCC 2012 Science Assessment. http://www.southatlanticlcc.org/page/science-assessment-1

Goal: Desired conservation outcome that is difficult to measure (e.g., Ecological Integrity of rivers and streams)

Indicator: A metric that is designed to inform us easily and quickly about the conditions of a system (e.g., Miles of fishable and swimmable streams). Used to measure progress toward a goal

Target: A measurable endpoint for an indicator (e.g., Maintain total miles of fishable and swimmable streams). Used to measure whether an indicator has reached the desired level.

Objective: A goal with one or more indicators and targets for each indicator

Additional examples of objectives:
- Maximize integrity of open pine systems (goal) - Brown-headed Nuthatch (indicator) - Increase coastal plain population by 50% (target)
- Maximize integrity of estuarine and marine systems (goal) - Sea grasses collectively (indicator) - Double the area of sea grasses (target)
- Maximize the quantity and representation of cultural sites (goal) - Historic rice fields (indicator) - Double area of historic rice fields in historic condition (target)

Framework

Sources: SALCC Optimal Conservation Strategies project, Albemarle Pamlico National Estuarine Program Comprehensive Conservation Management Plan, Millennium Ecosystem Assessment, and Heinz Center State of the Nation's Ecosystems

Note: This overall process document only addresses Indicators and Targets related to Natural Resources. Identification of indicators for Cultural and Socioeconomic Resources will begin in 2013.

Natural Resources

Goal 1: Maximize the integrity of ecological systems that characterize natural areas and managed landscapes that people care about. Ecosystem integrity is measured by the percent of indicator targets met within each of the habitat types below. Please see the crosswalk with Natureserve's Ecological Systems for additional detail on specific habitat types.

- Beaches and dunes
- Estuarine
  - Includes: Estuarine waters, benthic habitat, and tidal salt and brackish marsh
- Marine
- Forested wetlands (mineral soils)
  - Includes: Floodplain forests
- Forested wetlands (organic soils)
  - Includes: Pocosins
- Freshwater aquatic
  - Includes: Lakes, rivers, and streams
- Freshwater marshes
- Managed wetlands
  - Includes: Wetlands managed specifically for production of targeted wildlife (e.g., waterfowl)
- Grassland – prairie – savannah
- Southern pine forests and woodlands
  - Includes: Longleaf, shortleaf, loblolly, and slash pine systems
- Scrub-shrub
- Upland hardwood
- Xeric and maritime Scrub
- Landscapes (Habitat aggregates)
- Waterscapes (Habitat aggregates)

Additionally, for each habitat type, the cooperative will define desired ecological characteristics at both local and landscape scales needed to support each habitat's indicators at desired levels. These conditions should follow existing ecosystem assessment frameworks (e.g., those developed by the Heinz Center, National Research Center, and EPA Science Advisory Board)

Goal 2: Ensure the viability of Threatened and Endangered species. It may be necessary to identify additional indicators and targets, if maximizing the integrity of ecological systems is not enough to maintain the viability of key species.

Cultural Resources

Our cultural heritage is ethnographic; that is, it has a relationship to what people do on the landscape. Examples include huntable and fishable populations of animals, opportunities for recreation and access to public lands and waters, archaeological sites and objects. The process of identifying cultural heritage indicators and targets is scheduled to begin in 2013

Socioeconomic Resources

Factors sustaining human communities directly affect quality of life for humans and contribute to their livelihood and health. Examples include clean water (waters are safe for personal contact, fish and game are safe for human consumption), food, fuel, fiber. A team is now being created to scope out a process to identify the specific indicators in this goal. Contact Janet Cakir, SALCC Socioeconomic and Climate Change Coordinator - Janet_Cakir@nps.gov, for more info.

3) Criteria to be considered for natural resource indicators

"A useful Ecological Indicator must produce results that are clearly understood and accepted by scientists, policy makers, and the public" (Jackson et al., 2000, Evaluation Guidelines for Ecological Indicators. U.S. Environmental Protection Agency).

Sources

Based on suggestions from Natural Resource Indicator Team and Third Thursday Web Forum. Maximum number of indicators per habitat based on the Open Standards for the Practice of Conservation (http://www.conservationmeasures.org/initiatives/standards-for-project-management)

Selection criteria

Indicators
(Listed in order of importance as ranked by indicator team)
1. Ability of the indicator to represent a variety of organisms / ecological attributes within that habitat type throughout a major portion of the LCC
2. Amount of overlap with existing plans and processes
3. Relevancy and scale to respond to big landscape threats in the region
4. Ease of monitoring
5. Are indicators sensitive enough to reflect landscape changes but sufficiently monitored to mask short term variations?
6. How well will this indicator resonate with the American public?
7. How well can this indicator link with an economic value?

(Added later but not yet ranked by order of importance)

- Level of management interest on public lands
- Level of management interest of private lands

Targets
1. Amount of overlap with existing plans and processes
2. Is the target achievable?
3. Is there enough capacity to monitor the target?
4. [In the future] Amount of overlap with cultural and socioeconomic goals (Framework - #2, #3)

What can be a natural resource indicator?
Any metric that meets the indicator definition in Section 2 (Definitions) and focuses on ecosystem integrity as defined in Section 2 (Framework) can be a potential natural resource indicator. This could include positive indicators (e.g., species, guilds, native habitat extent, etc.) or negative indicators (e.g., nonnative species, extent of habitat alteration, etc.). Indicators can be either biotic or abiotic.

What can be a natural resource target?
Any metric that meets the target definition in Section 2 (Definitions) and focuses on ecosystem integrity as defined in Section 2 (Framework) can be a potential natural resource target. Examples include measures related to distribution (e.g., double the area of seagrasses, 50% of longleaf with a wiregrass understory, 1 million acres of longleaf), policy adoption (100% of states with an instream flow policy), vital rates (e.g., increase recruitment of Atlantic Sturgeon by 25%), and population size (e.g., double the coastal plain population of brown headed nuthatch)

Number of indicators per habitat
To simplify the modeling and reporting on indicators, each habitat should have a maximum of eight total indicators (ideally less)